Cardiovascular Animal Research Centre

/ International Clinical Research Center
/ St. Anne's University Hospital

RESEARCH GROUP CONTACT

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THEMATIC RESEARCH FOCUS

RESEARCH AREA

- Animal studies
- Experimental surgery
- Cardiovascular research including interventional cardiology
- Electrophysiology
- Hematology and hemostaseology
- Intensive care medicine and research
- Animal studies for neuroscience
- Microsurgery
- Advanced diagnostic imaging
- Small animal medicine and surgery

EXCELLENCE

Experimental Laboratory for Cardiovascular and Cerebral Interventions (including magnetic catheter navigation technology); one of the world's most advanced animal facilities, with all the specialists for Animal Medicine and Pathology on-site.

MISSION

Our main task is to prepare, conduct and evaluate preclinical animal studies of new drugs, biomaterials or procedures. We offer the environment of a highly equipped animal facility with the best technology in-site. We want to be a part of the wider world leaders and cooperate with world leaders and be attractive for more institutions and companies.

DEVELOPED TECHNOLOGIES

CONTENT OF RESEARCH

- Cardiovascular disease - portability to humans
- Tissue engineering
- Pre-clinical animal studies
- Veterinary clinical trials (on animal patients)

MAIN CAPABILITIES

- The use of stem-cells in cardiovascular medicine and surgery
- Rabbit arterial thrombosis model
- Pig model if hemorrhagic shock

We cooperate extensively with international companies through the background of ICRC (e.g. use of magnetic navigation and endovascular brain catheterization mapping to treat epilepsy and strokes), we invent new, more effective and more reproducible animal models, mimicking precisely real clinical situations.

FIELDS OF RESEARCH RESULTS APPLICATION

- Clinical trials for new drugs, biomedical devices and new procedures
- Biomedicine – especially cardiology and surgery
- Medical equipment - diagnostic, measurement, imaging devices

ALUMNI PROFILE

Specialists in pathophysiology, experimental surgery, animal physiology, pathology, diagnostic imaging, vascular and cardiovascular surgery.

NUMBER OF RESEARCH POSITIONS

SENIOR RESEARCH STAFF

17

JUNIOR RESEARCH POSITIONS (INCL. PH.D. STUDENTS)

10

KEY RESEARCH EQUIPMENT

LIST OF DEVICES

- Cardiovascular Animal Centre
- Technology for Advanced Diagnostic Imaging
- Animal pathology electrophysiology, using 1.5T MRI, NIOBE stereotactic navigation technology
- Vascular flow meter
- High tech anesthesiological equipment
- Remote telemetric monitoring

BUDGET

TOTAL (MIL. CZK/ MIL. EUR)

30 / 1.2

PART OF THE TOTAL BUDGET FROM PRIVATE RESOURCES (%)

50

PART OF THE TOTAL BUDGET FROM FOREIGN RESOURCES (%)

20

MAIN PROJECTS

2009–2011: Pig model of abdominal aortic aneurysm rupture. The influence of an early hyperoxygenation on parameters of systemic inflammation and reperfusion injury (grant awarded by the Czech Ministry of Health #NS10109-4/2008, Investigators: Sramek V, Suk P, Vlasin M, et al.)

2009–2011: Novel Use of Magnetic Guidance and Catheter-Based Cerebral Venous Mapping to Treat Epilepsy and Stroke (grant awarded by the Czech Ministry of Health #NS10099-4/2008, Investigators: Asirvatham SJ, Kara T, Vlasin M, et al.)

2011–2015: Studies in pig-to-primate cardiac xenotransplantation (NIH USA grant 2008 – 2010; extended 2011-2015 # AI66310-04, Investigators: McGregor CGA, Byrne GW, Vlasin M, Walker RC, Tazelaar HD, Chandrasekaran K, Oehler EA, Boilson BA, Wiseman BS and Logan JS.)

2007–2011: Ultrasonography in nanotechnology., Research Project Held by the Czech Academy of Science, project # KAN20050703, Investigators: Neužil J, Vlasin M et al.)

ACHIEVEMENTS

- Vlasin M, Dvorak M, Dvorakova M, Rauser P, Lexmaulova L, Gregor Z. Direct comparison of enoxaparin and nadroparin in a rabbit model of arterial thrombosis prevention. Thrombosis Research 126:56-60, 2010
- Meluzín J, Vlasin M, Groch L, Mayer J, Křen L, Raušer P, Tichý B, Horňáček I, Sitar J, Palša S, Klabusay M, Kořístek Z, Doubek M, Pospíšilová Š, Lexmaulová L, Dušek L. Intracoronary Delivery of Bone Marrow Cells to the Acutely Infarcted Myocardium. Cardiology 112:98-106, 2009
- Kren L, Meluzin J, Pavlovsky Z, Mayer J, Kala P, Groch L, Hornacek I, Rauser P and Vlasin M. Experimental model of myocardial infarction: Histopathology and reperfusion damage revisited. Pathol Res Pract; 206:647-650, 2010

MAIN COLLABORATING PARTNERS

COLLABORATION WITH ACADEMIC PARTNERS

- International Clinical Research Centre - St. Ann's Faculty Hospital (Brno, CZ)
- Mayo Clinic (Rochester MN, US)
- University of London (GB)
- Institute of Scientific Instruments, Academy of Science of the Czech Republic (Brno, CZ)

COLLABORATION WITH COMPANIES

- BioTest (Konárovice, CZ)
- Medtronic (US)
- Biotronic (DE)
- General Electric (US)

EXPECTATIONS

REQUIREMENTS

We seek partnership in cardiovascular research, namely inventing drugs, devices and methods to be applied in medicine. We want to capitalize on our know-how from basic research.

OFFERS

We offer a high level of experience in the development of custom- made animal models and studies, including the proper interpretation of results.